REPORT OF NIAGARA RIVER TOXICS COMMITTEE

STATUS REPORT

AND

DESCRIPTION OF MINISTRY OF ENVIRONMENT ACTION

ON

- Atlas Steels, Welland
  (Identified as a source of priority pollutants)
- Five landfill sites identified as having potential to leach contaminants:
  - Atlas Steels, Welland, Landfill Site
  - Cyanamid Canada, Niagara Falls, Landfill Site
  - Cyanamid Canada, Welland, Landfill Site
  - Fort Erie Municipal Landfill Site
  - CNR Victoria Avenue Landfill Site

November 27, 1984

ATLAS STEELS, WELLAND

Atlas Steels plant is located in the northeast portion of the City of Welland. The company also operates a landfill to the north of this plant at the edge of the Welland River. The Niagara River Toxics Committee (NRTC) have identified this plant as a significant point source of Environmental Protection Agency (EPA) priority pollutants.

The company makes specialty and stainless steels in electric arc furnaces. The NRTC, using 1982 data, has identified this plant as the largest Ontario source of EPA priority pollutants to the Niagara River (74 kg/d of which 70.2 kg/d is heavy metals). Two organics, Di-n-butyl Phthalate (0.38 kg/d) and Trichloroethylene (3 kg/d) have also been identified. The Ontario Ministry of the Environment issued a Control Order requiring Atlas to install filtration at both of its north and south plants including recycling and oil/water separators. A solidification plant was also installed to solidify waste acid and alkaline streams. This Control Order expired on September 30, 1983. These measures implemented by the Control Order achieved an 85 per cent reduction (60 kg/d) in heavy metals from those levels reported by the NRTC. Recent analyses shows that, although levels exceeded the NRTC cut off level, they meet Ministry discharge objectives.

The Ministry will continue its monitoring program at this plant to ensure that compliance is maintained. The Ministry will investigate sources of organics at this plant and encourage control by good housekeeping and maintenance. No further action is anticipated unless the review of Ministry discharge objectives should require further action.

CYANAMID OF CANADA, NIAGARA FALLS, LANDFILL SITE

During the construction of the Queenston-Chippawa Power Canal, wastes normally disposed of at the company's St. David landfill were stored on Ontario Hydro property (approximately 32,000 tonnes). In 1974, Ontario Hydro requested Cyanamid to remove these wastes and they were subsequently taken to Cyanamid's Welland Plant.

In 1982, the site was investigated by the Ministry and some residual wastes were determined to be present mostly in topographic depressions. No seepages were observed during inspections. The Niagara River Toxics Committee (NRTC) Report determined that the residual wastes which contained high concentrations of cyanide, may have the potential to leach contaminants to the Niagara River due to the proximity to both the Niagara Gorge and the Power Canal.

The Ministry decided to conduct a study on this site to evaluate this potential and has funded a preliminary hydrogeological investigation which is currently under way to examine the spatial extent of the wastes and to identify the potential for groundwater and surface water contamination from this site. The study is expected to be completed by December 1984. Groundwater and surface water monitoring, conducted under the same study, will also be completed by December 1984. Further action will be determined by the findings of the consultant.

CYANAMID OF CANADA, WELLAND, LANDFILL SITE

Solid waste disposal has always been carried out on site at Cyanamid's Welland plant. The Niagara River Toxics Committee (NRTC) has identified this site as having the potential to leach significant levels of contaminants to the Niagara River via shallow groundwater and surface water pathways.

Two approved disposal sites are located on the property: the East site is a three hectare area approved to receive 1,000 tonnes per year of 100 per cent non-hazardous waste; and the Brown Road site which is approved to receive 1,800 tonnes per year of non-hazardous waste.

In addition, 97 hectares of cells (lagoons) were approved under the Ontario Water Resources Act. Ten of 11 cells have been closed and capped; cell 11 is still active. The wastes are placed in the cells as a slurry.

In 1981, the Ontario Ministry of the Environment conducted a preliminary hydrogeological evaluation of the site and determined that sufficient clay overburden prevented bedrock water quality from being affected. Some elevated levels of sulphate and hardness occurred in surface waters, but these were not considered a threat to the environment. Elevated nitrate levels (26.4 mg/l) have been detected in the groundwater in fractured surface clays adjacent to the site. The Ministry continues to monitor shallow groundwater, ditches and surface waters near the site.

In 1983, Cyanamid modified drainage to control seepages from the lagoons.

In 1984, Cyanamid was convicted of operating a waste disposal site without a Certificate of Approval and was fined $7,500. As a result of this litigation, Cyanamid agreed to hire a hydrogeological consultant to extensively investigate the Welland plant site, hydrology and hydrogeology. This study is bing carried out in close liaison with the Ministry. The first phase of the program, establishing the groundwater flow system and designing the monitoring program for Phase 2 is due in December 1984. Phase 2 (monitoring) will be undertaken in 1985, based on the results of Phase 1.

ATLAS STEELS, WELLAND, LANDFILL SITE

The Niagara River Toxics Committee (NRTC) has identified Atlas landfill as a potentially significant source of contaminants to the Niagara River. The site has been used for waste disposal since the 1930's and is adjacent to the Welland River.

Drainage from the sites, both leachate and surface run-off, discharge to the Welland River and enter the Niagara River at Queenston. The site is licensed by the Ministry to receive 40,500 tonnes per year of 100 per cent non-hazardous industrial waste. This waste is mainly slag, containing various metalic oxides as well as chromate. Until 1983, spent acids were disposed of in a pit on the site; the lime content of the slag was assumed to neutralize the acids. Monitoring of the discharge from the site showed metals near effluent guidelines: cadmium 0.045 mg/l, nickel 12 mg/l (erroneously reported as 0.12 mg/l in the NRTC report) lead 0.20 mg/l and zinc 0.690 mg/l.

Waste acids from the plant are no longer disposed of at this site. Atlas is currently removing the residual ponded acid to the solidification plant and this is expected to be completed by the end of 1984. The NRTC determined that elevated metal concentration in the run-off, and the proximity of the Welland River, gave this site the potential to leach significant levels of contaminants to the Niagara River via the Welland River.

The Ministry decided that a study of this site was necessary to evaluate this potential and has funded a preliminary hydrogeological investigation of the site. The study, co-ordinated by the Ministry's Niagara River Improvement Team, is to describe impacts of the landfill on surface waters and groundwater. It is already under way and concentrates on the near surface weathered clays but does include one test well to rock to ensure that bedrock aquifer is protected. The report of this study is to be completed in February 1985. Atlas is continuing to conduct routine monthly sampling. Monitoring and evaluations from the groundwater study will be used to determine if leachate collection and treatment is required.

FORT ERIE MUNICIPAL LANDFILL

The Town of Fort Erie operates the municipal landfill on Bridge Street in Fort Erie. The Niagara River Toxics Committee (NRTC) have identified this site as having the potential to leach contaminants to the Niagara River or to groundwater.

This site is operated under a Certificate of Approval from the Ministry of the Environment. Although the original application indicated 2 per cent toxic waste were anticipated, no hazardous wastes have been disposed of at this site. In December, 1981, hydrogeological consultants to the town identified that leachate from the site had entered the bedrock beneath the site and that leachate was leaving the site to the north via surface seeps. The NRTC, using this information, listed this site as having the potential to leach significant levels of contaminants to the groundwater and/or the Niagara River.

The Ministry recommended that Fort Erie purchase the parcel of land to the north to provide a buffer zone and subsequently the town expropriated this 25 hectare parcel. Surface drainage was diverted to a leachate collection pond.

The town of Fort Erie commissioned a Phase 2 hydrogeological report which was completed in August 1983 to define the extent of bedrock contamination using 12 bedrock wells. This report, produced subsequent to the NRTC evaluation, concluded that leachate was assimilated close to the landfill in the bedrock aquifer, within the buffer zone and that there was no potential to impact local wells. Only one monitoring well, immediately adjacent to the waste is confirmed to have leachate contamination. Chemical analysis indicated elevated levels of conventional parameters only.

The Ministry has met with representatives of the town and their consultant and a more comprehensive analysis of water from the monitoring wells at the site is scheduled. The Ministry will carry out organics analysis of samples from the wells.

CNR VICTORIA AVENUE, LANDFILL

Canadian National Railways (CNR) has a marshalling yard west of Victoria Avenue in Niagara Falls, Ontario. Associated with this yard is a landfill used for disposal of boxcar-cleaning wastes. The Niagara River Toxics Committee (NRTC) has identified this site as having the potential to leach contaminants to the Niagara River, which is located some 75 metres to the north.

The site is owned by the CNR, a federal crown corporation, and as such, the site is a federal responsibility over which the provincial government has no jurisdiction.

The site occupies seven hectares and was used between 1962 and 1978 for the disposal of construction and domestic waste, scrap metal, clean-out waste from rail cars and some oil and machine shop waste. It was closed due to fire problems and covered with waste rock. Intermittent surface drainage shows iron staining and elevated conductivities.

In a 1983 federal study, it was concluded that: only a small fraction of waste was of medium concern; that there is a high potential for impact due to the proximity of recreational and residential lands; that the site was close to the Whirlpool where "Pacific Salmon and Rainbow Trout congregate during fall migration"; and that the site was rated as a priority 2 (to be assessed in future rather than immediately).

The Ministry of the Environment sampled leachate from the site in December, 1982. This sample showed copper, nickel and lead concentrations marginally exceeded Ontario Water Quality Objectives. No pesticides or volatile organics were present.

The Ministry has provided the data to CNR. No known action has been taken by the federal government to date. The Ministry will continue to monitor the site occasionally and press the federal government to follow the federal guidelines for closure at this site, including the required one-metre thick clay cap.

THE HONOURABLE ANDY BRANDT
MINISTER OF THE ENVIRONMENT

STATEMENT TO THE LEGISLATURE

ON

NIAGARA RIVER TOXICS COMMITTEE REPORT
AND
ENVIRONMENT ONTARIO DRINKING WATER SURVEY

NOVEMBER 27, 1984

MR. SPEAKER:

IN 1981, THE NIAGARA RIVER TOXICS COMMITTEE WAS FORMED TO FIND OUT WHAT CHEMICALS WERE IN THE NIAGARA RIVER, WHERE THEY CAME FROM, AND WHAT SHOULD BE DONE TO CONTROL THEM. THE COMMITTEE WAS COMPOSED OF REPRESENTATIVES FROM MY MINISTRY, ENVIRONMENT CANADA, THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY AND THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION.

THIS MORNING THE COMMITTEE RELEASED THE RESULTS OF ITS 3-YEAR STUDY.

FIRST OF ALL I WANT TO EXTEND TO THE MEMBERS OF THE COMMITTEE OUR APPRECIATION. NOT ONLY IS THE THOROUGH RESEARCH BY THE COMMITTEE TESTIMONY TO THE MERITS OF CO-OPERATION FOR OUR COMMON INTERESTS, BUT IT ALSO HAS GIVEN US INVALUABLE KNOWLEDGE UPON WHICH WE CAN BASE FUTURE ACTIONS.

THE REPORT STATES, MR. SPEAKER, THAT CONTAMINATION OF THE NIAGARA RIVER COMES FROM BOTH INDUSTRIES AND LANDFILL SITES ALONG THE WATERWAY. 89 PER CENT OF THE PRIORITY POLLUTANTS FROM MUNICIPAL AND INDUSTRIAL PLANTS COMES FROM THE UNITED STATES AND 11 PER CENT FROM THIS SIDE OF THE BORDER.

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10 FACILITIES WERE SINGLED OUT AS BEING RESPONSIBLE FOR 90 PER CENT OF THE POLLUTANTS TRACED TO SPECIFIC INDUSTRIAL AND MUNICIPAL POINT SOURCES. NINE OF THE 10 ARE ON THE U.S. SIDE. THE ONE CITED ON THE CANADIAN SIDE IS THE ATLAS STEELS COMPANY IN WELLAND.

RECOGNIZING THAT THE DATA FOR THE REPORT WAS COLLECTED IN 1981 AND 1982, I WANT TO SHARE WITH THE HONOURABLE MEMBERS THE ACTIONS ONTARIO HAS TAKEN IN THE LAST THREE YEARS WITH RESPECT TO THE ATLAS STEELS PLANT.

THE PLANT WAS PUT UNDER CONTROL ORDERS BY MY MINISTRY AND, WITH THE INSTALLATION OF POLLUTION ABATEMENT EQUIPMENT COSTING $10 MILLION, HAS REDUCED ITS DISCHARGE OF HEAVY METALS BY 85 PER CENT. MY MINISTRY IS MONITORING THE REMAINING DISCHARGES TO ENSURE CONTINUED COMPLIANCE AND TO DETERMINE IF FUTURE ACTION MAY BE REQUIRED.

IN ADDITION TO THE INDUSTRIAL SOURCES OF POLLUTION, THE NRTC REPORT DEALT WITH WASTE SITES ON BOTH SIDES OF THE BORDER. AS MEMBERS KNOW, MY MINISTRY HAS INTERVENED IN THE U.S. TO PRESS FOR ADEQUATE CLEANUP MEASURES OF SUCH CHEMICAL DUMPS AS HYDE PARK AND S-AREA.

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MR. SPEAKER, I BELIEVE IT IS IMPORTANT TO POINT OUT THAT FOR ONTARIO A BROADER DEFINITION WAS USED IN THE SEARCH FOR POSSIBLE PROBLEM WASTE SITES. THE AMERICANS ONLY CONSIDERED KNOWN OR SUSPECTED TOXIC WASTE SITES WITHIN THREE MILES OF THE NIAGARA RIVER. WE EVALUATED ALL WASTE SITES WITHIN THE ENTIRE DRAINAGE BASINS OF THE NIAGARA AND WELLAND RIVERS, WHETHER OR NOT THE SITES CONTAINED HAZARDOUS WASTES.

THE NRTC REPORT SINGLED OUT 61 WASTE SITES ON THE U.S. SIDE AND FIVE IN ONTARIO AS HAVING SIGNIFICANT POTENTIAL TO AFFECT THE NIAGARA RIVER.

THE FIVE CANADIAN LANDFILL SITES IDENTIFIED IN THE REPORT ARE:

1. THE CYANAMID COMPANY OF CANADA'S WASTE STORAGE AREA AT NIAGARA FALLS;
2. CYANAMID'S WASTE SITE AT ITS WELLAND FERTILIZER FACTORY;
3. THE ATLAS STEELS WASTE SITE IN WELLAND;
4. THE FORT ERIE MUNICIPAL WASTE SITE; AND
5. THE CANADIAN NATIONAL RAILWAYS' WASTE SITE IN NIAGARA FALLS.

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AGAIN, THE IDENTIFICATION OF THESE SITES AS BEING POTENTIAL PROBLEM AREAS WAS BASED ON STUDIES CARRIED OUT THREE YEARS AGO. IN THE CASES OF ATLAS STEELS AND CYANAMID WELLAND, RESPECTIVELY, REMEDIAL ACTIONS HAVE BEEN TAKEN UNDER A CONTROL ORDER AND BY AGREEMENT AFTER SUCCESSFUL PROSECUTION. IN THE OTHERS, MY MINISTRY HAS UNDERTAKEN INVESTIGATIONS, INCLUDING BOREHOLE SAMPLING. SO FAR THERE IS NO EVIDENCE OF A PROBLEM. THE CN RAILWAY SITE IS UNDER FEDERAL JURISDICTION AND HAS BEEN CLOSED. NEVERTHELESS, WE HAVE REQUESTED THE FEDERAL GOVERNMENT TO TAKE REMEDIAL ACTION.

MR. SPEAKER, I TRUST IT IS CLEAR THAT ONTARIO HAS ALREADY CONSCIENTIOUSLY DEALT WITH THOSE SITES OF <u>POTENTIAL</u> CONCERN WITHIN OUR JURISDICTION.

THE TOXICS COMMITTEE REPORT ALSO IDENTIFIED 139 CHEMICALS OF CONCERN IN NIAGARA RIVER WATER. WHILE THE CHEMICALS WERE DETECTED IN RAW, UNTREATED WATER, WE WANTED TO DETERMINE IF ANY OF THEM WERE PRESENT IN OUR TREATED DRINKING WATER.

FOR THE PAST SIX YEARS ONTARIO HAS BEEN MONITORING DRINKING WATER QUALITY IN THE NIAGARA AREA. THE PROGRAM WAS INITIATED IN RESPONSE TO CONCERNS ABOUT CHEMICAL DUMPS NEAR THE RIVER, PRIMARILY ON THE U.S. SIDE.

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TODAY, I WOULD LIKE TO SHARE WITH THE MEMBERS THE RESULTS OF OUR MOST RECENT DRINKING WATER SURVEY. IT IS THE MOST COMPREHENSIVE EVALUATION ONTARIO HAS EVER UNDERTAKEN.

USING DATA FROM THE NRTC REPORT AS THE BASIS OF THE INQUIRY, MY MINISTRY LAUNCHED A THOROUGH SAMPLING OF DRINKING WATER. SAMPLES WERE TAKEN FROM SEVEN WATER TREATMENT PLANTS. FOUR ARE IN THE REGIONAL MUNICIPALITY OF NIAGARA -- AT NIAGARA FALLS, FORT ERIE, WELLAND AND ST. CATHARINES. THE ST. CATHARINES PLANT IS ALSO THE SOURCE OF SUPPLY FOR NIAGARA-ON-THE-LAKE AND THOROLD. IT SHOULD BE NOTED THAT THE CITY OF NIAGARA FALLS GETS ITS WATER FROM THE NIAGARA RIVER AT A POINT ABOVE THE FALLS, THAT FORT ERIE'S INTAKE IS IN LAKE ERIE, AND THAT WELLAND AND ST. CATHARINES DERIVE THEIR DRINKING WATER FROM THE WELLAND CANAL.

FOR PURPOSES OF COMPARISON, WATER SAMPLES WERE ALSO TAKEN FROM HAMILTON, OSHAWA AND THE R.L. CLARK PLANT IN TORONTO.

ROUTINE TESTING WAS GREATLY EXPANDED TO ANALYZE TAP WATER FOR ALL POTENTIAL CONTAMINANTS OF CONCERN IDENTIFIED BY THE NRTC AS BEING PRESENT IN THE UNTREATED NIAGARA RIVER WATER.

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I WOULD LIKE TO POINT OUT THAT IT IS ONLY WITH RECENT ADVANCES IN ANALYTICAL EQUIPMENT AND PROTOCOLS THAT WE HAVE BEEN ABLE TO UNDERTAKE SUCH SOPHISTICATED TESTING. AS MEMBERS WILL RECALL, I HAVE MADE THE POINT REPEATEDLY IN THIS HOUSE THAT OUR LABORATORY CAN NOW DETECT CHEMICALS AT LEVELS PREVIOUSLY THOUGHT IMPOSSIBLE.

NOT ONLY CAN WE NOW FIND ONE PART IN A MILLION PARTS, BUT ONE PART IN A THOUSAND TIMES THAT, AND A THOUSAND TIMES THAT, AND A THOUSAND TIMES THAT -- THAT IS, ONE PART IN A QUADRILLION.

PUT ANOTHER WAY, THAT IS THE EQUIVALENT OF ONE SECOND IN 32,000 YEARS.

IN PRACTICAL TERMS, MR. SPEAKER, IF IT'S THERE WE CAN FIND IT.

OF THE 139 CHEMICALS OF CONCERN CITED IN THE NRTC REPORT AS BEING IN UNTREATED NIAGARA RIVER WATER, WE COULD DETECT ONLY VERY MINUTE TRACES OF NINE ORGANIC COMPOUNDS IN TREATED WATER. LET ME STRESS THAT <u>NOT</u> A SINGLE ONE EXCEEDED OUR DRINKING WATER QUALITY OBJECTIVES OR EXISTING WATER QUALITY CRITERIA.

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THREE OF THE NINE DETECTED ARE CREATED DURING THE PURIFICATION OF RAW WATER. IN ALL CASES, THEY WERE FAR BELOW ONTARIO DRINKING WATER QUALITY OBJECTIVES.

SIX OTHERS, LIKELY OF INDUSTRIAL ORIGIN, WERE ONLY DETECTED IN THE PARTS PER TRILLION RANGE, THAT IS AT LEVELS AT LEAST HUNDREDS OF TIMES BELOW THE THRESHOLD LEVELS AT WHICH TOXICITY IS BELIEVED TO OCCUR.

THE TREATED WATER WAS ALSO SAMPLED FOR METALS FOUND TO BE PRESENT IN UNTREATED NIAGARA RIVER WATER.

I AM PLEASED TO REPORT THAT OUR SAMPLING FOUND NONE OF THE METALS DEFINED AS TOXIC -- ARSENIC, CADMIUM, MERCURY OR LEAD -- IN THE DRINKING WATER EVEN AT LEVELS LESS THAN ONE PART PER BILLION.

THE SIX METALS WE DID DETECT INCLUDING ALUMINUM, COPPER AND ZINC, WERE THOSE FOUND NATURALLY IN ONTARIO'S SURFACE WATERS. AGAIN THEY WERE FAR BELOW ONTARIO DRINKING WATER GUIDELINES.

I WOULD LIKE TO GIVE YOU SOME IDEA OF WHAT OUR FINDINGS MEAN TO PEOPLE WHO DRINK THE WATER, INCLUDING MYSELF.

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A PERSON WOULD HAVE TO DRINK MORE THAN 30,000 GLASSES OF WATER A DAY EVERY DAY FOR A LIFETIME TO EXCEED THE SAFETY LEVELS OF -- FOR EXAMPLE -- THE CHLORINATED BENZENES DETECTED IN OUR SAMPLES.

THE ANALYSIS OF THE DRINKING WATER FROM THE SEVEN TREATMENT PLANTS INDICATES THAT IT NOT ONLY MEETS, BUT ALSO GREATLY SURPASSES THE QUALITATIVE CRITERIA ESTABLISHED BY THE WORLD HEALTH ORGANIZATION AND BY ONTARIO'S DRINKING WATER OBJECTIVES.

IN OTHER WORDS, IT MORE THAN MEETS ALL HEALTH-RELATED OBJECTIVES KNOWN TO MEDICAL AND SCIENTIFIC AUTHORITIES.

THE WATER THAT COMES FROM ONTARIO'S WATER TREATMENT PLANTS, MR. SPEAKER, IS SECOND TO NONE IN THE WORLD.

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